

ANNUAL REPORTS
FOR
YELLOWSTONE NATIONAL PARK



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YELLOWSTONE NATIONAL PARK

1926

ANNUAL REPORT

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YELLOWSTONE NATIONAL PARK

Horace M. Albright, Superintendent, Yellowstone Park, Wyoming

The year 1926 in Yellowstone National Park has been marked by many outstanding circumstances and events:

(1) There was an increase of 33,525 visitors during the travel season over the 1925 season; expressed otherwise as an increase of 22%

(2) An extraordinary number of distinguished men and women were among the season's visitors. These included the Secretary of the Interior Dr. Hubert Work; H. R. H. the Crown Prince of Sweden, Gustavus Adolphus, and H. R. H. Crown Princess Louise and their Royal party; the Governors of Maine, Vermont, Connecticut, Pennsylvania, South Carolina, Georgia, Florida, Alabama, Kentucky, Indiana, Illinois, Iowa, Minnesota, Oklahoma, New Mexico, Wyoming, Montana, Idaho, Utah and Hawaii; U. S. Senators R. W. Stanfield of Oregon, H. F. Ashurst of Arizona, J. B. Kendrick of Wyoming, Peter Norbeck of South Dakota, W. E. Borah and F. R. Gooding of Idaho; R. B. Howell of Nebraska; U. S. Representatives Samuel S. Arentz of Nevada, Albert Johnson of Washington, Adam M. Bryant and Milton T. Shrave of Pennsylvania, Charles E. Winter of Wyoming, H. J. Simmott of Oregon, James A. Freer of Wisconsin, and Addison T. Smith of Idaho; the Presidents of the Union Pacific, Great Northern, Northern Pacific, Chicago, Milwaukee & St. Paul, and

New York Central Railroads; Mr. John D. Rockefeller, Jr., and many other prominent business and scientific men.

(3) Road improvement was greatly advanced. The Lake Shore and Inspiration Point road projects were completed, the Fire-hole Cutoff nearly finished and the Galletin and East Entrance projects begun. Roads and trails were splendidly maintained.

(4) Service to the public by rangers and ranger-naturalists and by hotel, permanent camp and transportation utilities was exceptionally good and prompted many compliments. The utilities made many betterments in their properties.

(5) A mild winter with little snow favored all wild life and no losses occurred. Of course, lack of moisture created a serious summer fire hazard but this was successfully met by the rangers.

(6) Cleanup of the roadsides with funds provided by a friend of the Park proceeded very satisfactorily and has caused much favorable comment. Other landscape work of importance including removal of telephone poles from the roads was also completed.

(7) There was a greater use of trails than ever before. Many horseback parties were on the trails for long periods and July 12th to August 4th over 200 members of the Sierra Club of California walked over a large part of the trail system.

(8) Another effort to secure reservoir rights in the Bachler

River Basin was made by Idaho irrigation interests. Hearings were held in Washington on the plan, and a special senate committee visited the Bechler River region in August. The National Park Service and its friends are vigorously opposing the project.

(9) Legislation to readjust the park boundaries and add the Teton Mountains was considered in Congress but enactment was delayed. A bill to improve game conditions north of the Park and to add a small area to the Park was passed and approved by the President on May 26th.

(10) On June 20th the park was formally opened for the 1926 season. Director Stephen T. Mather of the National Park Service was the principal speaker at ceremonies sponsored by Rotary International. Motorists were admitted to the park on May 16th and the first trains were operated on June 17th.

WEATHER

The early fall was characterized by unseasonably cold and stormy weather with unusually heavy snowfall for the season, giving promise of a long, cold and snowy winter. But the months of November, December, January, February and March were extremely mild with comparatively light snowfall. This long period of almost unbroken mild winter temperatures is unprecedented in 40 years of record. The lowest temperature recorded at Mammoth was 3° below zero on January 20 and also on March 20, which was the only

temperature of zero or below during the winter. However, considerable below zero weather occurred at higher elevations, but the snowfall was light, and disappeared unusually early in the spring. Except for some of the higher passes, all the roads in the park were open by May 1. April and May were near normal in precipitation, but June and July were markedly deficient, the latter month being the driest July of record. The low humidity during the latter half of July resulted in high fire hazard. Rains beginning on August 7, introduced a cool, showery period that continued until the 21st. September was characterized by decidedly cool, windy weather with light precipitation. On the 24th, following a storm of unusual severity for the season, a temperature of 7° was recorded. This is the lowest September temperature for the past 31 years, and with the exception of zero recorded on September 22, 1895, it is the lowest for so early in the fall since the official record began in 1897. On an average there is only about one September in each ten years that the temperature goes as low as 20° .

RAIL IN 1926

Park visitors this year totaled 184,807 as compared with 154,292 last year, an increase of 33,525. The rail travel figures were 40,260 as compared with 44,736 last year, showing a decrease of 3,826. There was a decrease of 1,333 rail visitors at the

west entrance; the north entrance shows a decrease of 2,280 and the east entrance an increase of 344 as compared with the preceding season. 271 came in via the Lander or Southern Gateway, as compared with 225 last year.

The automobile travel records, for preceding seasons have been exceeded at all gateways this year. A total of 51,427 auto visitors entered at the east gate, 43,768 at the west, 27,424 at the north and 13,830 at the south; grand total all gateways 141,449, exclusion of motorcycle and preseason visitors.

The number of cars and people reported at the various developed camp grounds during the season are indicated as follows: Mammoth 23,942 cars and 78,529 campers; Old Faithful 36,756 cars and 110,644 campers; Lake 26,819 cars and 87,966 campers; Canyon 22,443 cars and 73,613 campers; Norris 1,930 cars and 6,330 campers; Madison Junction 3,481 cars and 11,417 campers; Thumb 3,508 cars and 11,506 campers; Tower Falls 4,417 cars and 14,487 campers. In addition, approximately 11,375 campers used the many camping places along the roads.

The west entrance continues to lead in rail travel and the east entrance is the favorite gateway for motorists. There was an increase of 35,120 auto visitors over the total of last year.

The rail travel in the west entrance includes 813 Chicago, Milwaukee and St. Paul railway passengers delivered by the buses of The Yellowstone Park Transportation Company from Three Forks, Montana.

Total Season Travel by Entrances, 1926 and 1925

Gateway:	Rail	By Automobile	By Motorcycle	By Walk-	ing,	Pre-	Total	
	Visitors:	Cars	Visitors	Motor-	Visi-	Horse-	season	Visi-
				cycles:	tors	back, etc.		tors
						Visitors	Visitors	tors
1926								
North	14,127	9,203	27,424	26	38	371	1,860	43,620
West	12,951*	14,862	48,769	57	68	164	1,062	63,013
East	7,611	15,627	51,427	49	66	326	126	59,556
South	271	4,349	13,830	14	22	1,257	38	15,418
TOTAL--	40,960	44,326	141,449	146	194	2,118	3,086	127,807
1925								
North	17,007	8,796	26,593	42	64	394	1,471	43,529
West	20,227	9,815	32,713	34	42	66	173	53,301
East	7,867	11,686	36,901	40	58	275	66	45,775
South	225	2,771	8,914	10	16	499	23	9,677
Total	44,786	33,068	106,329	126	180	1,234	1,733	154,222

*This figure includes 813 Chicago, Milwaukee & St. Paul railway passengers delivered from Three Forks, Montana, to the west entrance.

ADMINISTRATIVE DEPARTMENT

Headquarters office.--During the fiscal year from 4 to 8 clerks were employed in the headquarters office on general correspondence, files, personnel, purchasing, timekeeping, miscellaneous financial matters, information, and a wide range of other duties relating to this and to other parks. Approximately 17,001 pieces of mail were received and 21,512 dispatched.

Appropriations.--Appropriations made available since the date of the last report are as follows:

Act

Jan. 30, 1925	Insect control (additional to 1925 report)	\$	900.
May 10, 1926	Administration, Protection and maintenance (1)		369,300.
May 10, 1926	Construction, sewers and camp grounds, etc.		28,700
May 10, 1926	Insect control		3,500.
May 10, 1926	Road and trail construction (2)		98,000.
May 10, 1926	Road and trail surveys		8,000.
		\$	509,200.

(1) \$7,940 reserved for Washington Office expenditures and \$4,000 as a budget reserve.

(2) Authority has also been granted Act of May 10, 1926, to obligate \$175,000 Road and Trail construction to be appropriated later.

Of 1926 fiscal year funds, \$1000 was transferred to Wind Cave National Park and \$3000 was returned to the Treasury.

Revenues for 1926.--Funds collected during the fiscal year 1926 and deposited to the credit of Miscellaneous Receipts in the United States Treasury were as follows:

Automobiles and motorcycles.....	\$ 248,649.88
Hotels and Camps.....	44,751.56
Transportation Company.....	48,489.06
Stores.....	15,503.23
Miscellaneous.....	816.43
Total	\$ 358,199.46

Revenues for the 1927 fiscal year will amount to approximately \$255,000.00, owing to the reduction in the automobile fee from \$7.50 to \$5.50 per car.

Engineering Department

This department is in charge of Engineer Merrill F. Daun, aided by Assistant Engineer Cecil A. Lord.

Road Maintenance: The Park road system consists of 302 miles of road designated as follows: Grand Loop 140.7, approach and connecting roads 79.1, secondary and roads to points of interest, 81.5 miles. During the 1926 season, 302 miles of park road, 28 miles of road in the Shoshone Forest and 30 miles of road in the Teton Forest were maintained. Twenty-six crews, made up of 120 men, 69 teams, and two gravel trucks, were engaged upon this work.

During the tourist season 107 miles of the Grand Loop was sprinkled twice daily, except during the long drouth which dried up some of the sources of water supply, and the many mechanical breakdowns necessitated the laying off of sprinklers for repairs. The equipment used upon this work was two two-horse sprinklers, six 4-horse sprinklers, and nine motor sprinklers. During July two additional sprinklers were used. A crew of four men maintained the sprinkler supply system, replaced ten of the old wornout tanks with new 1500 gallon redwood tanks, rebuilt many of the ditches and installed additional supply pipe lines.

Snow Removal: Due to the light snowfall and the early spring the roads of the park were open to travel much earlier than usual. On May 3 the roads were open from Mammoth to Lake, Mammoth to Old Faithful and East Yellowstone, and Mammoth to Cooke City. On May 17th work started on blasting out the snow in Sylvan Pass and the East Entrance road was

opened June 1. Dunraven Pass was clear of snow May 23. On June 6 a crew started to blast snow on the Mt. Washburn road and this road was finally opened to travel June 24. The southern entrance was open on May 29th.

Road Improvement: The first three-year program of improvements to roads in Yellowstone consists of 13 projects of which the following have been completed or will be partially completed this season:

Project #1-Firehole Cut-Off.-1-1/2 miles of new construction through the Firehole River canyon and 1-1/2 miles of reconstruction from the Canyon to Madison Junction, a very scenic section of the park.

Project #3-Lake Shore Road.-Reconstruction of 12 miles of old road completed.

Project #6-Firehole River Road.-Widening 1-1/2 miles of road above Project No. 1 completed.

Project #7-West Thumb-Arnica Creek Road.-Widening 3/4 miles of road around Bluff Point, two miles from West Thumb along Yellowstone Lake. Completed.

Project #9-Mammoth-Tower Falls Road.-Widening 2 miles of road and surfacing 3 miles. Completed.

Project #11-Inspiration Point Road.-Reconstruction of 2-1/2 miles of road along the north rim of the Grand Canyon. Completed.

Bridges.-Five bridges including the Gardiner River and Yellowstone River bridges on the Cooke City road were painted the National Park

Service green. The Gardiner River bridge was also redocked, as were the Lava Creek and Blacktail Deer Creek bridges. The Lamar River bridge was realigned and repaired.

Buildings.--Two of the 30 x 80 foot military warehouses were remodeled into duplex apartment houses. The squad rooms of the guardhouse were made into offices for the Chief Civil Engineer. A central heating plant was placed in the basement of the guardhouse and will furnish heat for the above apartments and offices. The three cells in Judge Melburn's house were removed and the space altered to provide office space. At Slough Creek Ranch 2 new log buildings were erected - one 16 x 30, 2 stories high, and the other 20 x 40 feet, 2 stories high, with a lean-to 12 x 40 feet for use as a wagon and tool shed. One of the 4 residence buildings on the lower street was remodeled and an addition 12 x 16 feet was constructed on the north side to provide additional bedroom and closet space. A concrete basement was built on to the old portion and hot water heating system installed.

LANDSCAPE ARCHITECTING ACTIVITIES

Both Landscape Engineers D. R. Hall and F. C. Vint visited the Park during the year, the former to select sites for buildings and discuss building plans with our organization and with public utility operators, the latter to confer and advise on road location, vista cutting, etc. Both men devoted time to cleanup projects and vista

cutting in connection with this work. Buildings were designed for the Slouth Creek ranches, plans were made for planting the Transportation Company's grounds at Gardiner, and advice was rendered on treatment of the grounds between the north arch and the Northern Pacific station.

The work of cleaning up the roadsides was continued last autumn and this spring with privately contributed funds. The Norris-Mammoth project was continued and completed with the exception of about a mile between the 13 and 14 mile posts south of headquarters and a half mile between the 18 and 19 mile posts. The road along the shore of Lake Yellowstone between Lake Hotel and Bridge Bay was cleaned up in May and June. This autumn, work will be carried on north of West Thumb and between Grand Canyon and Lake Junction. This cleanup work is greatly improving the scenic character of the park roads, and has been the subject of a vast amount of favorable comment by tourists.

SAVING THE OLD FASHION

This department, in charge of Master Plumber William Higgins, cooperated closely with the engineering department in construction work.

1. Public auto camp ground development.--Old Faithful.--Built two comfort stations, including 16 flush toilets, 4

wash basins and two urinals. Built 300 tables. Installed 600 ft. 3" galvanized iron water pipe, 460 feet 2-inch and 500 feet 3/4" G.I. pipe; also 700 feet 6" sewer pipe.

Camp Roosevelt.-Installed complete sewer system including 2,000 feet 6" sewer pipe. Built 4 concrete manholes with cast iron covers and constructed sewerage tank 100 feet long x 10 feet wide x 3 feet deep, with 3" plank cover.

Mammoth.-Built one comfort station and installed 10 flush toilets, 8 wash basins and 1 urinal. Built shower building equipped with 8 hot and cold showers and 2 wash basins. Installed one 500 gallon hot water storage tank heated by a Tabasco type extra heavy tank heater made for burning coal. Installed 650 feet 1-1/2" galvanized iron water pipe and 370 feet 3/4" for drinking water; also 12 1/2" hose bibbs.

Fishing Bridge Auto Camp.-Constructed concrete sewerage treatment tank 130 feet long by 10 feet wide by 3 feet deep, with concrete top accessible by 12 cast iron manhole covers. Built 500 tables. Installed 2,000 feet 6" sewer pipe and 680 feet 8" sewer pipe. Built 5 concrete manholes with cast iron covers. Installed 600 feet 3/4" G.I. water pipe, 400 feet 1", 1,000 feet 2", 1,200 feet 2-1/2" and 650 feet of 3." Built 3 comfort stations, including 24 flush toilets, 6 wash basins and 1 urinal.

Thumb Auto Camp.-Built one comfort station including 6 flush toilets and 1 urinal. Installed 250 feet 2" galvanized iron pipe and 100 feet 3/4". Laid 80 feet 4" extra heavy soil pipe for sewer.

Madison Junction Auto Camp.-Built 2 comfort stations including 16 flush toilets, 4 wash basins, and 2 urinals. Installed complete sewer system including one concrete sewerage treatment tank 50 feet long x 10 feet wide and 8 feet deep, accessible by 6 cast iron manhole covers. Laid 850 feet 6" sewer pipe. Built 50 tables. Constructed 30 foot concrete screening tank. Laid 3,000 feet 3" galvanized iron pipe, 300 feet 1-1/2" and 500 feet 3/4".

2. Mosquito Control. The mosquito situation in the park was much improved due to extensive ditching and oiling at the Canyon, Lake, Tower Falls, West Thumb, Upper Basin and Mammoth.

3. Garbage and refuse disposal. All dump grounds cleaned up. Tins and glass burned, buried. Garbage not eaten by bears, and paper, trash, and wood burned.

4. Miscellaneous. Installed vacuum heating system to heat 4 buildings and chief civil engineer's office. Installed one Ideal water tube steam boiler, capacity 4,450 square feet connected to 1,400 square feet of cast iron radiation. Laid 100 feet 5" steam main and 150 feet of Adso wood casing for underground steam mains, 4" thick, lined with asbestos and tin; also 250 feet of Adso wood casing for vacuum return lines 2" thick.

PROTECTION DEPARTMENT

The permanent personnel of this department consists of the chief ranger, S. T. Woodring, 4 assistant chief rangers and 26 park rangers. There were 2 vacancies in the permanent personnel at the opening of the 1926 tourist season which were filled by temporary appointments: 52 temporary park rangers were added to the force on June 16th, making a total summer strength of 83.

The first conference of chief park rangers was held in Sequoia National Park on January 15th to 19th, 1926. Chief Ranger Woodring attended this conference and presided as chairman. All members of the Yellowstone Park ranger force were called in conference, at headquarters station, on May 12th to 14th, 1926. The ranger service is considered to have been greatly benefited by these meetings.

Winter activities.—Regular and special patrols were made throughout the fall, winter and spring seasons for the observation and protection of wild life and the natural features of the park. Other activities have consisted of the capture and shipment of buffalo and elk, predatory animal hunting and repairs and maintenance to telephone lines, buildings and equipment. Two new log buildings have also

been erected by ranger labor at the Slough Creek hay ranch.

Summer activities.-Fire, fish and traffic patrols; information, guide and lecture service, compilation of travel statistics for record purposes, communication service, checking entrance and exit travel, camp grounds duty, police duty and a wide range of other duties in furtherance of the convenience and pleasure of park visitors.

Forest fires.-There were no forest fires of importance during the year, although a total of 35 small fires were extinguished by park rangers during the tourist season.

Trail construction, maintenance and improvements.-17½ miles of new trail have been built, consisting of 8 miles of saddle horse trail between Camp Roosevelt and the Yancey Ranch. This trail leads to local points of interest including a beaver colony and Garnet Ridge, 4 miles of horse and foot trail leading from the Heart Lake Cabin to the summit of Mt. Sheridan and 3 miles of foot trail known as the "nature trail" at Upper Geyser Basin and 2½ miles of new trail on Crevise Mountain. The total trail mileage, exclusive of game trails used on patrol, is 971. The entire trail system was cleared of down timber and repaired; this work consisted in part of several hundred feet of corduroy, a permanent horse bridge at Shoshone Creek, a permanent foot bridge across the channel between Lewis and

Shoshone Lakes and foot logs across all streams along the trail from Fountain to Yellowstone Lake, via Old Faithful, Shoshone Lake, Lewis Lake, Heart Lake and the Upper Yellowstone.

Fish planting.-Fish planting activities this year, with comparative figures for 1924 and 1925 are reported as follows:

	1924	1925	1926
Total collection of black-spotted:			
trout eggs from park waters....	52,000,000	11,743,000	17,000,000
Number of eggs collected in park,			
hatched, and returned to park			
waters, or planted as eyed eggs:	18,544,000	4,536,760	5,891,000
Total number of fish planted			
in park			
Black spotted trout collected			
in park.....	18,544,000	4,536,760	5,891,000
Eastern brook trout received from:			
Montana State Hatchery.....	49,400	- - - -	- - - -
Rainbow trout received from			
Montana State Hatchery.....	- - - -	60,000	- - - -
Lock Haven trout received from			
Montana State Hatchery.....	41,600	- - - -	8,494,000
Total fish plants for year.....	18,635,200	4,416,760	5,891,000
Total fish shipped to outside			
points.....	- - - -	6,726,000	- - - -
Total eggs shipped to outside			
points.....	- - - -	- - - -	8,494,000

BUFFALO RANCH OPERATIONS

The activities at the buffalo ranch during the year have consisted in part of the care and keep of the herd, the erection of a new machine shed 22 by 22 feet, and a new oil house 9 x 10 feet in size. Fixtures were installed for running water in the

ranch house and other buildings involving the laying of 1600 feet of pipe. One hundred acres of new land have been plowed and 2216 feet of new fence built. Other activities have consisted of repairs and maintenance to buildings and equipment and the harvesting of the 1926 hay crop which is estimated at 500 tons. Eighteen buffalo were captured and crated for shipment during the year. Six hundred and eleven tons of hay were fed at this point during the year, leaving a balance of approximately 400 tons which, together with the 1926 crop, makes a total of about 900 tons now on hand for use during the approaching winter season.

HAY RANCH OPERATIONS

Wild animal and horse feeding at the Slough Creek, Yancey and Gardiner ranches during the year accounted for 76.79 tons of hay. There was very little wild animal feeding at these points. The balance on hand of the 1925 hay crop is 284 tons. The approximate yield this year at the above named ranches is 322 tons. Other activities have consisted of maintenance and repairs to buildings and equipment and the erection of two new log buildings at the Slough Creek Ranch; one of these buildings is 16 x 30 feet and two stories high and the other is 20 x 40 feet and two stories high, with a lean-to 12 x 40 feet for use as a wagon and tool shed.

PREDATORY ANIMALS

Two hundred and forty-three coyotes were killed during the year as compared with 100 last year.

NATURAL FEATURES OF THE PARK

Observations of wild life, geysers and hot springs activities and forests have been made by the park naturalist and by rangers, and are briefly reported as follows:

Wild animal conditions.--Wild animal and forage conditions have been good throughout the year.

Buffalo, Lamar River Herd.--The herd total on April 9, 1925, was 644, consisting of 323 males (bulls 162, steers 161) and 321 females. The total of the 1925 calf crop was 120, making a herd total of 764 on October 1, 1925. Eight bulls, 1 steer, and 10 cows have been shipped since October 1st, 1925. Two bulls and 2 steers have been killed because of fatal accidental injuries. Ten bulls, 3 steers and 10 cows comprise the total losses during the year. The herd total on April 1st, 1926, was 741, which, together with the 1926 calf crop numbering 105, makes a grand total of 846 buffalo in the Lamar River Herd.

Buffalo-Cold Creek Pelican Flats Herd.--The total count during the year was 65. There has been no apparent increase and the herd total is estimated at 125.

Mountain sheep.--Actual counts during the winter and spring seasons total 217, as compared with 195 last year. The estimated total within the park is 600.

Antelope.--The largest count secured during the year was 497 as compared with 417 for the year preceding. The herd is in

excellent condition; the annual increase this year should bring the herd total to approximately 600. There was a reported loss of 3 during the past winter season - two were killed by coyotes and one died from natural causes.

Moose.-The actual counts of the past winter season total 103, as compared with 170 for last year and 121 for the year preceding, but these figures are not considered as indicating a decrease in the number of moose in the park. Conditions were not as favorable for making observations as during the two preceding years. Severe weather and deep snow offer the best opportunities for moose counts; last winter was not characterized by either. There was an observed loss of 4 from natural causes during the year and 6 were unlawfully killed by hunters in Idaho at points near the park boundary. There is an estimated total of 575 in the park.

Deer.-The largest count secured during the year was 798 as compared with 602 during the year preceding. Sixty-nine were killed by hunters at points adjacent to the park; 7 were killed by coyotes and 3 died from natural causes. There is believed to be not less than 1850 mule deer in the park and at nearby points along the Yellowstone and Gallatin Rivers.

The reports concerning white tail deer that have been had during the year have not been verified and it is doubtful if there are any remaining in the park.

Elk.--Excellent weather and forage conditions have prevailed during the past winter season and elk losses were correspondingly slight. All reports indicate an unusually large calf crop this year. The losses from all causes during the past winter season are indicated as follows: 394 were killed by hunters at points adjacent to the park, as compared with 1228 last year. The total reported winter kills was 15 as compared with 347 last year. Three died from accidental injuries and 76 were shipped to game preserves, public parks and zoos. The total loss from all causes was 433 as compared with 1703 last year. There was no need of artificial feeding although a few tons of hay were distributed in the vicinity of the elk corral in order to make the required number of captures for shipment. Approximately 1100 tons of hay will be available for wild animal feeding at the various hay ranches in the park, but it is believed that the range has adequate forage for all requirements of the elk. The estimated total of the Yellowstone elk, exclusive of the Jackson Hole herd remains 20,000 because on account of the mild winter, and the fact that the herd was widely scattered, no counts could be made; however, there should have been a fair increase in the northern elk herd. The figure 20,000 is based on actual counts made in April 1924 and April 1925, when about 14,000 were seen in the northern part of the park and the

watersheds of the Gallatin and Madison Rivers. Nevertheless, I find it hard to believe that there are so many elk in these sections, as my own observations have failed to confirm the large figures. In the Jackson Hole region, the Biological Survey officials state that there are now about 30,000 elk, a figure which also seems high to me. The Jackson Hole herd enjoyed a mild winter and there is a large accumulation of hay available for the coming winter. The State of Wyoming has opened the Shoshone Lake region to elk hunting and some moose may also be killed in the Jackson Hole this year.

Bears, black and brown.-Bears of this species are commonly seen throughout the park and latest counts indicate a total of approximately 75 that frequent points of interest along the loop road. This number includes 14 cubs. The total number of black and brown bear in the park is believed to be about 225.

Bears, grizzly.-Recent count of bears of this species are indicated as follows: Canyon 22, Lake 8, Old Faithful 5, Thumb 2, total 37, including 16 cubs. The presence of grizzlies at other points have been noted from time to time during the tourist season. There is believed to be not less than 80 bears of this species in the park.

Beaver.-The range and extent of beaver activity is increasing from year to year and there appears to be a normal annual increase.

Other small animals.-Marten, mink, weasel, skunk, otter and fox are abundant; they are frequently seen by rangers on winter season patrols. Woodchucks, porcupines, badgers, etc., are numerous at all points.

Migratory birds.-Ducks and geese have been abundant on all park waters. Swans have appeared at intervals along the Yellowstone and sandhill cranes have been nesting at 3 different points.

Trees and insects.-Two most injurious defoliating insects of Park timber, the spruce budworm and the lodgepole pine sawfly, have caused no damage this year. Apparently they have disappeared. The lodgepole needletyer occurred at West Yellowstone in about the same numbers as last year. To control it, a strip of lodgepole from 150 to 200 feet wide on each side of ten miles of main and lateral highway was sprayed between June 26th and July 10th. In general it may be said that insect conditions in the Park forests are much better than for the past three years.

GEYSERS AND HOT SPRINGS

Geysers and Hot Springs.-A new hot spring has gushed from the old inactive formations on the opposite side of the road from Liberty Cap. The new formation of deposit covers an irregular area varying from 25 to 35 feet across on the upper level which is five to six feet above the ground level. This is the first marked activity in that particular series of old formations for a period of at least twenty years. Jupiter Torrance maintains

great activity at the southern end. Angel Terrace was very active and beautiful the early part of the season and later dried up considerably. Old Angel at the higher level has recommenced activities and quite a bit of water is flowing over the terrace. Highland Terrace has lost none of its vitality of 1923. Mound Terrace was even more active than last season but the activity of Minerva has been nearly a negligible quantity. Orange Spring is unchanged and the activity of the White Elephant continues to shift southward. Tyzen itself is quite dry but the spring at the base of the Devil's Thumb is quite large and the water very hot.

Morris Geyser Basin.—Constant Geyser resumed activity on June 16th after an extended period of quiescence. The first observed eruption of Mud Geyser, during the season, occurred on June 25th; it played to a height of 50 feet. The next observed eruption occurred on August 12th; it played again on August 21st and has since been active at intervals of every few days. Valentine plays every few days at irregular intervals. The Minute Man is noticeably weaker than in the spring. Coral and Vixen are, on the other hand, very active. Their eruptions, though small, are frequent and show much vigor. New Crater remains unchanged. The steam of Black Crowler is now dispersed through several openings and the roar is remarkably less, although there is practically no change in the temperature (204° F). Constant and

Whirligig constitute the most spectacular exhibit of the basin. August was marked by noticeable increase in thermal activity over the preceding month, an increase that has coincided quite closely with the resumption of rains after the protracted dry period of July and early August.

Upper Geyser Basin.—Grand Geyser has been playing on the average interval of 15 hours, the Daisy at intervals of 32 minutes and Riverside on the average interval of 7 hours and 45 minutes. Lone Star plays every two hours and the Oblong at least once every 24 hours. The Castle had only one active period during the season (July 20th to 29th) when it played to the maximum height of 175 feet. Old Faithful has been playing on the average interval of 64 minutes. The observed eruptions of Giant, Giantess and Beehive since October 15th, 1935, are indicated as follows: Giant - Oct. 25th February 12th, May 24th and September 10; Giantess - December 1st, March 20th and September 14th; Beehive - December 1st, May 24th, August 30th, and September 14th.

Giant did not display its usual power during the eruption of September 10th. The eruptions of Giantess on December 1st and September 14th were characterized by great power and vigor, it did not display its usual power on March 20th.

The first and only observed eruption of Cliff Spring, in recent years, occurred late in August. There was a marked increase

in thermal activities, throughout the basin, during late August and September, which was no doubt largely influenced by the increase of rainfall over preceding months.

No marked changes have been observed in the geyser and hot springs activities at Lower Geyser Basin or at Thumb of Yellowstone Lake.

INFORMATION DEPARTMENT

A total of 52,894 people visited the information office at headquarters during the season. Compare this total with the corrected total of 35,568 during the season of 1925, and 30,677 during the season of 1924. A total of 106,649 free publications were distributed at the information office and ranger stations during the year and 6,636 Government publications, including 1,058 portfolios were sold; compare this total sale with 8,089 Government publications, including 2,291 portfolios disposed of last year. In addition 1,027 books of other publishers were sold.

Lecture Service.-This service at Mammoth Hot Springs consisted of three lectures each evening before audiences totaling approximately 58,532. Lectures were similarly conducted at Old Faithful, Lake, Canyon and Tower Falls and were attended by approximately 54,852 persons at Old Faithful, 19,567 at Lake, 14,168 at Canyon, and 763 at Tower Falls, as compared with 72,160 at Mammoth, 40,232 at Old Faithful and 1,194 at Tower Falls last year.

Guide Service.-Two regular guide parties were conducted twice daily over the formations at Mammoth Hot Springs and Old Faithful. Special guide service was also furnished at these points upon request. Nature guide service was also conducted on regular schedules at Mammoth Hot Springs, Madison Junction, Old Faithful, Yellowstone Lake, and Tower Falls. The season total of all guide parties during the season of 1936 is indicated as follows: Mammoth Hot Springs, 11,496, Madison Junction 1,484, Old Faithful 32,920, Yellowstone Lake, 6,992, and Tower Falls 1,193, as compared with 14,856 at Mammoth Hot Springs 31,892 at Old Faithful and 1,108 at Tower Falls last year.

Nature trail.-During the height of the season more than 2500 persons stopped each day at Old Faithful. A careful study of the situation by the Chief Naturalist shows that the 2 ranger naturalist guides at this point could not reach but 20% of the visitors. In order to serve the others without adding to the staff every feature of the Formation Trail and Black Sand Trail was completely labeled with all available information. Arrows at each point indicate the route to be followed. About two miles of foot trail was built to Observation Point, Solitaire Geyser, and many other interesting springs of this region. This loop trail, subsidiary to the two formation trails, has been developed as a nature trail, all flowers, birds nests, trees and other features of the trail being labeled for the visitors.

ELECTRICAL DEPARTMENT

Electric System.--The following table shows the total production of the power plant and disposition of current as compared with similar data for the fiscal year 1925.

The peak load for the year was 204 kilowatts as compared with 164 kilowatts last year.

	:	:
	: 1924-25	: 1925-26
Total production in kilowatt hours	: 600,680.00	: 684,290.
Sold to park operators	: 100,126.67	: 96,318.
Consumed for street lighting	: 21,086.00	: 26,596
Balance, consumed by Government build-	:	:
ings, for power and lighting, lost	:	:
on lines, etc.	: 479,467.33	: 583,374.
	:	:

Telephone system.-- Twelve miles of new line were built to Bechler River. Thirty-one hundred old poles were reset on the Government lines in the Park. Sixteen miles of new telephone lines were constructed between Morris Junction and Fountain ranger station by the Yellowstone Park Hotel Company and the National Park Service. Twenty-five-foot cedar poles and two six pin fir crossarms were used, and eight wires were placed, which provides two metallic circuits, and one phantom circuit for the Hotel Company and the National Park Service. This new line was located out of sight in the timber wherever possible and permitted the dismantling of the two old lines that were along the roadside. There are 379 miles of telephone lines in the park, 96 miles grounded; 263 miles metallic, and 36 miles phantom.

PROPERTY AND TRANSPORTATION

Under the direction of the Steward and Master of Transportation 2899 tons of material, equipment, and supplies were moved from railroad terminals to headquarters. From headquarters 11 trucks were operated through the park supplying road camps, construction camps, etc. The total mileage of the trucks was approximately 73,505. A maximum of 16 men were engaged in the warehouse and in the transportation work. A total of 68,809.84 ton miles were hauled.

MECHANICAL DEPARTMENT

The mechanical department made repairs to all trucks in use; overhauled all trucks and Government owned touring cars, freighters, Caterpillars, air compressors, etc. The Blacksmith overhauled all dump wagons, road graders and small equipment of all kinds, and did horseshoeing. Winter activities in this department consist of completely overhauling all trucks and road machinery, and all shovels, picks, axes, etc., are rehandled and sharpened. In the saddle shop harness, tents and other canvas and leather equipment were patched, sewed and otherwise repaired.

PAINTING DEPARTMENT

The master painter and his assistants painted the roofs of all buildings at park headquarters with the exception of red tile roofs. All steel bridges in the park were painted with the exception of two bridges between Mammoth and Gardiner and three

bridges on Tower Falls road. Approximately 900 new signs were made, painted, repaired and touched up. Most of the time during January, February, March, April and May was given to re-decorating interiors of buildings at headquarters. Three sets of quarters were finished throughout, also two new sets of quarters for Engineering Division employees and office building for engineers. Miscellaneous work of all kinds, such as glazing, etc., in paintshop. Varnished all floors at hospital.

IMPROVEMENT BY PUBLIC UTILITIES AND INDIVIDUAL OWNERS

Yellowstone Park Hotel Company.-Marathon. A great deal of work done on renovating of hotel in way of painting and new equipment - shades, rugs, etc. Added three rooms and two bathrooms to Mr. Nichols' residence. Repairs on McDonald and Lindeler residences. Installed new electric range and transformer and meter in Mr. Child's residence.

Old Faithful.-An engine of 150 h.p. was installed which will complete lighting of hotel grounds. Installed new 75 KW generating stand and switchboard for same. Put in concrete washing place for garbage cans and other similar utensils. Repaired sewer system. Put in carbonator machine for buffet. Transportation bunkhouse moved and placed on foundation. Put in a new work of fire lines and 10 2-stream 2-1/2" fire hydrant. All communicator lines to all rooms were rewired with heavy weatherproof wire. Installed

new 6" galvanized iron pipe line to reservoir. Remodeled kitchen. Installed outside fire protection. A great deal of work was done in the way of painting floors and rooms. Main part of main building redingled. Additional fire escapes installed.

Lake.-New mangle and other new machinery installed in laundry. Boys' dormitory washroom equipped with toilets and shower baths. Outside fire protection installed. New storage reservoir built. Painting, calcimining, etc., in a number of rooms.

Canyon.-Roof of hotel was painted. New rooms for kitchen crew built in basement. New officers' dining room built. Entire drainage system in rear of hotel installed. A great deal of work was done painting, calcimining and renovating rooms and halls in hotel.

Yellowstone Park Transportation Company.-Gardiner.-Finished garage, machine shop and five residences under construction last year. Purchased 20 Lincoln cars, 1 Ford runabout and 1 Ford truck for line crew.

Old Faithful.-Moved bunkhouse to new location and started erection of new drivers' wash house.

Canyon.-Remodeled drivers' bunkhouse and built new wash house and started addition to mess house.

Yellowstone Park Boat Company.-Old boat house torn down and new one, 20 x 40 feet, built. New warehouse built. New speed boat, 2 new motor boats and 10 new rowboats purchased.

Yellowstone Park Camps Co.-Mammoth.-Remodeled 5 employees' dormitories, replacing all canvas with lumber, and built in permanent windows; built eight 12 x 20 feet, and twelve 12 x 12 feet, all lumber lodges, in public automobile camp; constructed an addition to Mr. Goodwin's quarters, approximately 20 x 25 feet, and an addition, 16 feet wide by 60 feet long, to horse barn; replaced upper part of laundry building with new roof, approximately 15 feet wide by 70 feet long.

Old Faithful Camp.-Constructed a laundry building, 16 x 30 feet, for employees, 12 log and frame lodges (12 x 20 feet) and 36 log and frame lodges, 12 x 12 feet.

Lake Camp.-Constructed, in the Fishing bridge Auto Camp, a lunch counter and delicatessen building, T-shaped, consisting of 2 wings, each 28 feet wide by 60 feet long, and installed 39 canvas and frame lodges, which were moved from the main camp. At the Lake Camp the newest part of the main building, which was a log structure 48 feet wide by 140 feet long, was entirely remodeled, the dining room being newly finished, the kitchen newly equipped, and baths, flush toilets, barber shop, dispensary, etc., installed. The following additions to this building were constructed: On the north side, a building 60 feet wide by 164 feet long, which houses guests' dining room, part of the kitchen, and the employees' dining room; an addition, 48 feet wide by 80 feet long, adjoining new building, and in rear of old building, which houses bakery, pantry, storeroom, meat refrigerator, vegetable

room and a part of the main kitchen; a building for a curio store, 36 feet wide by 50 feet long, in rear of main building, with an entrance off the lobby; a building 30 feet wide by 20 feet long, used as registration desk, transportation company office, and general office; a building 30 feet wide by 30 feet long, which serves as barber shop, dispensary and hall; an addition 44 feet wide by 130 feet long, on the south end of main building, used as a recreation hall and housing baths and toilet rooms. Also constructed a boiler house building, 30 by 50 feet; a new linen room building of log and frame, 20 feet wide by 45 feet long, ten log and frame lodges, 12 x 20 feet, 52 log and frame lodges, 12 x 12 feet; built 4 new fire hose houses and equipped them with hose for fire protection; converted one of permanent log buildings into an employees' laundry, installing stationary tubs; constructed a frame and log building, 12 x 16 feet for housing dry, split wood.

Canyon.-Constructed a boiler house, 30 feet wide by 50 feet long, 6 log and frame lodges, 12 x 20 feet, and 37 frame and log lodges, 12 x 12 feet.

Camp Roosevelt.-Constructed building of log and frame, 18 feet wide by 36 feet long, for bath house and toilet rooms; built annex in rear of main building off kitchen, 16 feet wide by 30 feet long, for employees' dining room; constructed 4 log and frame cabins, 12 x 14 feet.

Sylvan Jager. - Constructed large flush toilet and comfort station for female employees; constructed an addition to main building in the rear, to be used as an employees dining room, size 20 feet wide by 48 feet long.

Thurb. - Nineteen tents were moved to this place from Lewis Lake for the purpose of housekeeping lodges in the Public Automobile Camp, also a temporary delicatessen was equipped and operated; constructed 5 new canvas and board lodges; began the construction of a building for lunch counter and delicatessen, L-shaped, consisting of 2 wings, each being 24 feet wide by 50 feet long.

Henry F. Brothers, bath. - Installed two new bath tubs and 1250 feet 1-1/2" galvanized iron pipe for hot water line.

George Muttelk, carpent. - Whiteth. - Built new boiler room to accommodate heating plant; also built new coal house and laundry room and new porch on kitchen. Painted roof on store and all buildings at Canyon.

C. A. Hamilton, carpent. - Commenced construction of new restaurant and delicatessen adjoining present building. Commenced rebuilding filling station with 40 foot frontage at Old Faithful. Completed addition to Fishing Bridge store and painted entire building. Built rack for draining crank cases adjoining filling station. Built similar one at Old Faithful. Installed 2 new liquid carbonic soda fountains with Frigidaire - one at lake and

one at Old Faithful Public auto camp.

Pryor & Trischman.-Park Curio Shop.-Extensive improvements to Devil's Kitchenette on terraces; painting and improvements to camp store; new parking space provided in front of curio shop, also minor improvements to shop.

J. E. Haynes, official photographer.-Mammoth.-Installed a 42-inch Simplex ironer in laundry. A plank sidewalk, 4 x 30 feet, was laid outside the dormitory. Installed 4 steel filing cases, 4-tier each, in office. A cement sidewalk, 3-1/2 x 16 feet, two pieces, was laid outside the shop; public drinking fountain installed. A sidewalk, 3 x 36 feet, was laid outside residence. A Berkefield filter, capacity 30 gallons per hour, and one International filter, capacity 400 gallons per hour, were installed in the laboratory.

Canyon.-An International filter, capacity 400 gallons per hour, and coagulator were installed in laboratory. Public drinking fountain installed outside shop.

Lake.-New counters and cabinets were installed in shop. Ten illuminated outside showcases, assorted sizes, were placed at Old Faithful (4), at Canyon (4) and at Mammoth (2).

FRANCHISES AND PERMITS

On February 13, 1926, the Secretary of the Interior approved a new franchise contract in favor of Haynes' Picture Shops,

Incorporated. This contract runs for the period January 1, 1944, to December 31, 1945.

DEPARTMENT OF JUSTICE-U.S. COMMISSIONER'S COURT

Hon. John W. Moldrum, Commissioner since 1894, presiding. Proceedings were had in 39 cases during the year. There were 38 convictions and 7 acquittals. A total of \$500 in fines, exclusive of costs, was imposed. There were 31 cases involving violations of traffic violations, 2 cases involving violations of camp fire regulations, 2 cases involving violations of the Federal Prohibition Act, 1 case of trespass and unlawful hunting on park lands, 1 case of alleged rape, 1 case of breaking and entering, and 1 case involving the charge of defacing geoyer formations.

POST OFFICE DEPARTMENT

Receipts showed an increase of about 5% over last year. Increase in business showed principally in the general delivery department, and the carrier service around the park.

DEPARTMENT OF THE INTERIOR

Inspection service.-For several weeks during the summer, Inspectors Charles L. Gable, Wilson A. Blossom and Sheridan Ferree were in Yellowstone Park examining books of the public utilities and observing their operations and those of the National Park Service. August 21-24, Mr. E. K. Burlew,

administrative assistant to the Secretary, accompanied by Chief Inspector J. F. Gartland, visited the park on inspection.

Geological survey.-The usual inspections of water gauging stations were made regularly during the summer, and work was begun on the installation of a self-recording gauge on the Gardiner River, near park headquarters.

DEPARTMENT OF COMMERCE

Bureau of Fisheries.-Egg collecting at Lake Yellowstone and Fish Lake was begun early this year owing to disappearance of snow and ice. Conditions were much better for collection of spawn at Lake Yellowstone than they were last year, and a better take resulted. However, otter increased at Fish Lake, and took a large toll of spawning trout, thus reducing the collections of eggs at this point. The total egg collections for the season was 17,000,000, of which 3,234,000 were hatched and planted as fingerlings in the park, and 2,657,000 were planted in the eyed stage. Shipments of eggs or fry outside the park totaled 8,494,000. District Supervisor C. F. Culler again had personal charge of fish cultural work in Yellowstone.

DEPARTMENT OF AGRICULTURE

The Assistant Secretary of Agriculture, Hon. R. W. Dunlap, visited Yellowstone Park 11-13 of July, inclusive.

Weather Bureau.-Mr. E. E. Fletcher, the local observer was in charge throughout the year, and made many routine and special reports to us on weather conditions.

Bureau of Entomology.—Dr. H. E. Burke of this Bureau was again on duty in the Park studying forest insects and directing control work. His report under another heading shows that the insect problem is not nearly as acute now as it was two years ago.

Sanitary Department

Public Health Service.—Mr. H. B. Hanson, Sanitary Engineer, visited the park twice during the summer and gave advice on our program for construction of sanitation facilities and improvement of camp grounds. No associate engineer was assigned to the park this year, all sanitary work being in charge of our Master Plumber William Higgins. The Public Health Service continued to keep an assistant surgeon in the park to aid in safe-guarding health. Dr. H. A. Strickland resigned on February 23, 1926, and on February 24 Dr. Leslie J. Stauffer succeeded him. On September 15, 1926, Dr. Stauffer resigned and he was succeeded by Dr. Richard R. Brady of Nebraska.

Hospital and Medical Service

In the hospital, leased to Dr. Geo. A. Windsor of Livingston, Montana, the following cases were cared for: 60 accidents (37 minor, 23 major); 22 surgical operations (6 minor, 16 major); 7 contagious; 107 sick. A total of 2,015 were treated in the hotel and camp dispensaries. Resident Physician Stauffer attended

to 116 office calls and 142 house calls.

EXPANSION LEGISLATION

Carrying out the recommendations of the President's Commission on Coordination between National Parks and National Forests, set forth in last year's report, Secretary Work asked the Chairman of the Public Lands Committees of the U. S. Senate and the House to introduce departmental bills providing for the adjustment of Yellowstone Park's boundary lines to conform to natural features, and for adding the Teton Mountain area.

S.3427 was introduced March 5, 1926, and H.R.9917 was presented to the House on March 2, 1926. Hearings were held on the latter bill March 26 and April 2, 6, 7, 17 and 24, and on the Senate Bill April 27, 29 and 30.

During the hearings, Idaho irrigation interests who were active in 1918 and 1920, saw an opportunity to try to secure the Bechler River Basin for a reservoir by proposing an amendment to the pending bills eliminating the basin from the park in the boundary revision. The fight on this so-called Smith Amendment held the bills in committee, and neither one was reported out. On July 2, 1926, the Senate adopted Resolution 235 authorizing a study of the problem on the ground and an appropriation of \$3500 was made to cover expenses of a special subcommittee. August 15th to 18th, members of both Senate and House Public Lands Committees

under their respective Chairman, U. S. Senator R. H. Stanford, and Congressman H. J. Minnott, visited Idaho and the southeast corner of the Park, held hearings and inspected the region affected. I was absent in Glacier Park at the time but was ably represented by Mr. J. E. Haynes, Acting Director of our museum, and by Park Rangers Lick and Bicknell.

GAME PRESERVE LEGISLATION

On March 26, 1926, the President approved Public No. 245, "An Act to make additions to the Absaroka and Gallatin National Forests and the Yellowstone National Park, and to improve and extend the winter feeding facilities of the elk, antelope and other game animals in Yellowstone National Park, and adjacent lands, and for other purposes." This legislation paves the way for establishing adequate winter feeding grounds for park animals that stray beyond the north boundary. Public spirited citizens led by Mr. Thomas Cochran and Mr. George D. Pratt, have subscribed a fund for the acquisition of ranch lands in the Yellowstone valley north of the park, these to be turned over to the Federal Government for the cultivation of hay and for winter feeding grounds. The W. M. Happe ranch, of approximately 1,000 acres, was purchased in November 1925 and has since been available for the ranging of elk and antelope. Other lands will be purchased this winter but friends of the park who are aiding

in this enterprise believe that Federal appropriations should be forthcoming to aid in the acquisition of this property, and it is likely that further legislation to this end will be discussed in the coming session of Congress. The lands needed to complete this project will cost approximately \$250,000, one-half of which will be subscribed privately. 134.74 tons of hay were raised on the Hoppe ranch this year.

GLACIER PARK FIRES

On July 31st I was ordered to Glacier Park by the Secretary to assume charge of the forest fire fighting work there. I was on the fires for three weeks, with Chief Ranger S. F. Wehring and Assistant Chief Harry Brischman of Yellowstone Park, Landscape Engineer F. C. Vint and the Glacier Park organization. The last week of August I visited Mount Hood (Banff), Yoho, Montezuma and Waterton Lakes National Parks in Canada, returning to Yellowstone Headquarters August 30.

REPORT OF THE EDUCATIONAL DIVISION ALBERT F. HALL, CHIEF NATIONALIST

The accomplishments of the Educational Division during the past year fall logically into three subdivisions:

1. The careful planning of the educational program for the parks collectively and for some individual parks.
2. The solution of educational problems pertaining to all the parks such as the review and preparation for printing of

natural history bulletins; the development of an information manual for Yellowstone, thus working out principles which can be applied in similar volumes for other parks; the organization and equipping of the headquarters of the Educational Division at Berkeley, California; and other such extensive activities.

3. The establishment and improvement of educational work in individual parks including the inauguration of activities in Crater Lake National Park; enlisting of cooperation from private individuals which resulted in donations of material and services in several parks; securing of surplus government equipment to the value of several thousand dollars for Yosemite and Crater Lake National Parks; construction of museum exhibits for Yellowstone National Park; inspection and individual work in numerous parks including the establishment of three nature trails, a wild flower garden and a branch museum in Yellowstone National Park.

Under the first subdivision of activities, namely, the planning of the educational program, most attention was paid to the broad educational plan approved by you in September, 1925; This plan lists the park educational activities as follows:

1. INFORMATION OFFICE

- A. Information offices maintained by full-time ranger-naturalists.
- B. Information offices maintained by regular rangers (usually alternating).
- C. Information sub-stations; visual material (no ranger in charge).
- D. Signs and posters at points of scientific interest, including special "NATURE FILES".

- E. Signs, posters, literature and announcements telling of educational activities in the Park.
- F. Radio broadcasting.

2. BOOKS AND PUBLICATIONS

- A. Park library and branch libraries
- B. Sale of Park publications, both governmental and general.
- C. Publications by educational staff:
 - Nature Notes
 - News articles
 - Scientific articles
 - News items on menus and other park utility cards.

3. VISUAL EDUCATION

- A. Photographs
- B. Lantern slides
- C. Motion Pictures

4. MUSEUM AND BRANCH MUSEUMS

- A. Administration
- B. Building and properties
- C. Accessions and preparation of exhibits
- D. Cooperation and extension service

5. BOTANICAL FIELD EXHIBITS

- A. Wild flower gardens (including mosses, ferns, lichens, fungi, etc.)
- B. Arboretum
- C. Labeling of trees, flowers, etc., in the field.
- D. Cut flower displays

6. ANIMAL EXHIBITS

- A. Wild life sanctuaries
- B. Attracting and taming animals, (feeding, planting of bird food, bird baths, etc.)
- C. Animals in captivity - Zoo
- D. Birds in captivity - Aviary
- E. Reptiles, amphibians, etc. - Terrarium
- F. Fish - Aquarium, fish hatchery, planting of fish.

7. PRESERVATION OF SITES OF EDUCATIONAL INTEREST (including restorations)
8. FIELD TRIPS CONDUCTED BY EDUCATIONAL STAFF
 - A. Nature guided trips (ranger naturalist in charge)
 - B. General information trips (regular ranger in charge)
 - C. Special guide trips by visiting specialists.
9. LECTURES
 - A. Popular lectures by nature guide rangers
 - B. Technical or semi-technical lectures by visiting specialists. (Announcements of lectures and guide trips mentioned under (1-B)).
10. SCHOOLS OF FIELD NATURAL HISTORY
 - A. Courses for the training of nature guides.
 - B. Courses for the general public.
11. UNIVERSITY COURSES OFFERED IN PARKS
12. RESEARCH

Chiefly dependent upon cooperation with visiting specialists.
13. MISCELLANEOUS
 - A. Special visitors
 - B. General cooperation, etc.
 - C. Pageants, etc.

Your approval of the principles set down in this broad educational plan officially established the Educational Division of the National Park Service. This educational summary also sets forth the duties of the Chief Naturalist, park naturalists and other educational officers. The keynote of the plan, however, is the EDUCATIONAL WORKING PLAN for each individual park. This educational working plan is vitally necessary for development in

individual parks for the following reasons:

(a) In order to summarize the educational possibilities and to obtain a perspective of all educational problems.

(b) In order to provide for a gradual and logical development and,

(c) In order to plan a budget which will accurately list all necessary expenditures whether it is expected that these expenditures will be made by government appropriation or by private cooperation. Careful attention to the formulation of these working plans means the application of business efficiency which will result in the success of our educational work.

During the past year a preliminary educational working plan has been developed for Yellowstone National Park and work has been done upon similar projects for both Yosemite and Mount Rainier.

The educational activities in the national parks were thoroughly discussed at the superintendents' conference in Mesa Verde National Park in October, 1925, and at the first chief rangers' conference in Sequoia National Park in January, 1926.

During the past year much time has been devoted to the securing of office equipment, tools, and other supplies from the Veterans' Bureau, the United States Shipping Board, the Bureau of Public Roads, and other government organizations. This was a necessary preliminary to museum exhibit construction, and even office work

at the headquarters of the Educational Division, since no appropriation had been made for the equipment of these headquarters. Equipment to the value of several thousand dollars was secured and much of it reshipped to the Yosemite Museum and to Crater Lake National Park.

Special attention has been paid to the establishment of a reference library at educational headquarters and in individual parks. About one hundred volumes, secured through cooperation, were shipped from educational headquarters to the Yosemite Museum where they are in use in the library which has been established at that point.

The work of Garnet Holm, Pageant Master for the National Park Service, was kept in closest touch with that of the Educational Division through frequent conferences in San Francisco. Besides the larger historical and allegorical pageants produced or written by Mr. Holm for Sequoia, Yosemite and Yellowstone National Parks and for Pinnacles National Monument, another type of entertainment was developed as an experiment. A shorter and very amusing skit was written for Yellowstone, its purpose being to call attention in an incidental but impressive way to the educational opportunities offered by the National Park Service to visitors.

After the first tools had been received at Educational headquarters, the construction of museum exhibits was carried on

by the Chief Naturalist. Lack of assistance and press of other duties, however, greatly delayed this work. Two portable working models of geysers, each erupting to a height of two and one-half feet approximately every minute, were produced and shipped to Yellowstone National Park for use in the Museum and in the new Branch Museum at Old Faithful.

The establishment of educational activities in Crater Lake National Park during the past season under the direction of Dr. Loye Holmes Miller, proved how urgent is the need for such work in the parks in which such development has not as yet taken place. Dr. Miller's personal efforts were augmented by the voluntary services of three competent assistants, so that we were able to offer daily guided field trips and lectures to maintain exhibits of cut wild flowers, to start a small museum and to compile check lists of the mammals, birds and flowers of the region.

Personal attention of the Chief Naturalist and several members of the Yellowstone Educational Staff was given to the establishment of three nature trails in the Old Faithful region. Here we were facing the stupendous problem of attempting to serve 2500 persons daily with the services of only two ranger-naturalists available. The Formation Trail and the Black Sand Basin Trail were, therefore, carefully labeled with all the geological facts that could be supplied by the ranger-naturalists. Additional bits of natural history were pointed out. A new loop trail was built

to Observation Point and Solitary Geyser and developed as thoroughly as possible as a nature trail, not with the purpose of replacing in any way the formation trails but to supplement them. The wild flower garden and branch museum started at this station will require additional development next season.

In examining all the accomplishments of the Educational Division during the past season in retrospect, one important conclusion stands out before all others. In the development of definite detailed plans, in administration of general park educational activities, in detailed work in the parks, in museum construction - in short in all of the many educational activities - progress is limited by the lack of adequate assistance and will progress in proportion as such assistance is provided.

THE YEAR IN THE PARKS YELLOWSTONE NATIONAL PARK

I was fortunate in being able to reach Yellowstone Park on June 20th, in time for the formal opening ceremonies which were held this year at the north entrance arch at Gardiner, the terminus of the Park branch of the Northern Pacific Railway. These ceremonies, in which I had been kindly asked to participate, were arranged in cooperation with Rotary Clubs of Montana and the Northern Pacific Railway. A large crowd was present and the affair was very interesting, colorful and altogether enjoyable.

While the formal opening was the one receiving the attention of the press, owing to an extraordinarily early spring, cameras

with their own cars and equipment had been visiting the park ever since May 16th. Even the high passes in Wyoming, which usually are not cleared of snow until nearly the middle of June, this year admitted tourists before the first of that month. There had been a very open winter in most of the western states, and in the Yellowstone region little snow fell after December 1, 1925, thus causing an abnormal deficiency in moisture. This brought the advantage of early park opening to visitors, but likewise was responsible for excessive dust conditions and bad fire hazards during the summer to follow.

ANNUAL RECORD SEASON

The month of June had not yet closed when it became apparent that the season of 1926 in the Yellowstone was to be unprecedented in number of visitors to be entertained. It was indeed a record breaker. There was an increase of 33,525 visitors over 1925; 165,807 this year as compared with 134,282 last year. There was an very slight decrease in travel by rail, owing probably to the fact that few conventions were held in the west during the season, but there was an increase of 35,182 in the number of visitors traveling in their own cars. The total number of motorists was 141,440.

When we stop to consider that each of Yellowstone's _____ motorists camped several times in the park, the problem of the National Park Service in providing camp grounds, water, sewage

and garbage disposal, tables, wood, etc. can be more fully appreciated. Many motorists, of course, enjoyed the facilities of the hotels and lodges, but fully 125,000 preferred to pitch their tents and use their own camping equipment. This means that upwards of 400,000 individuals used the various park camp grounds in the course of the summer.

BUILDING FOR THE CAMPER

During six seasons we have been building camp grounds and equipping them with modern sanitary facilities and installing water systems, tables, comfort stations, and other necessary equipment. Much progress was made this year, new sewer systems and disposal tanks being constructed in the great Fishing Bridge automobile camp, and in the new and beautiful motorists' camp at Madison Junction at the confluence of the Gibbon and Firehole Rivers.

All other camp grounds were extended and improved, but we did not satisfactorily meet the needs of all of the campers at the height of the season, and next year these facilities for campers must be greatly enlarged.

IMPROVEMENTS IN PUBLIC UTILITIES

The public utilities of the park made many notable improvements in their properties. The machine shops and other structures, forming a part of the enormous plant of the Yellowstone Park Transportation Company near Gardiner, were completed and placed in use early in the year. Planting and care of the grounds will

finish this splendid improvement of the park's operating facilities.

At Lake Yellowstone, the Yellowstone Park Camps Company rebuilt and vastly enlarged its Lake Lodge. Two wings of huge proportions were built, one on each side of the old lodge central building; one for dining rooms and kitchen, the other for amusements and baths. This reconstruction and extension of the Lake Lodge leaves only the Old Faithful Lodge to be rebuilt and this project has been included in the budget for next year. The Camps Company also built adequate and attractive structures at the Fishing Bridge, Old Faithful and West Thumb camping grounds for the housing of lunch room, cafeteria and delicatessen operations. Cabins for the housekeeping unit in the Mammoth camping grounds, and tents for the similar units at four camps in the upper park were installed as a part of our program for installation of a new service for the camper.

The development of the housekeeping units in connection with lunch rooms and cafeterias gives Yellowstone Park four distinct types of service - the hotel, the lodge, the housekeeping cabin where the visitor can cook his own meals or use the cafeteria, and the free camping grounds. I have already discussed, where the motorist can use his own supplies and equipment entirely.

Improvements have been made along several lines by the stores, curio shops and picture shops, but space precludes a detailed account of these betterments.

Medical service was conducted on a high plane of professional efficiency, and we are now arranging to place this service on a permanent basis through execution of a ten year franchise.

As to service by the public utilities of the Park, changes in personnel and adjustments of policy paved the way for the best service to the public that the park has ever furnished, and contributed immensely toward the unprecedented success of the summer's operations. Our own service in the public camp grounds was excellent, and the rangers, by their courtesy, tact, kindness, and efficiency impressed every visitor to the park that our Department was interested in them and wanted their trips to be successful and enjoyable.

ROADS AND TRAILS IN GOOD CONDITION

Roads, despite the dry summer, and aside from the dust nuisance, were maintained in good condition, and the engineering department of the park is entitled to great credit for the good showing made on the roads under the adverse conditions with which it was confronted. Trails were placed in better condition than ever before by the ranger department. This efficient ranger force also controlled the fire situation so well that no lightning or other fire burned more than an acre.

PARKER HOUSE AND SUMMER VISITORS

Yellowstone National Park, always fortunate in having among its thousands of visitors many men and women distinguished in

business and professional life and in the public service, was honored this year more than usual by visitors of great prominence, including the Secretary of the Interior, H. R. H. the Crown Prince and Crown Princess of Sweden, the Governors of nineteen states and the Territory of Hawaii, seven members of the United States Senate, an equal number of members of Congress, and the presidents of five great railroad systems. The interest which these influential visitors have taken in the Yellowstone and other parks is very inspiring, and it is especially pleasing to know that these men and women who are so competent to pass judgment on large Government and business operations, were very favorably impressed with the manner in which the Department is conducting the national parks.

PRIVATE AID IN LANDSCAPE REPAIRMENT

Faith in our policies, plans and personnel prompted a very public spirited and generous business man of New York to offer, two years ago, his aid in accomplishing certain very important landscape work in Yellowstone Park. He authorized the cleaning up of the road sides of the park which had been littered years ago by timber and brush cut from the rights of way, and which were very unsightly and always the subject of unfavorable criticism. At first he had experiments conducted to ascertain costs and scenic effects, and upon deciding to proceed with the work on a large scale, asked the superintendent to submit to him projects each embracing approximately a season's possible accomplishment. Several of these projects have received his approval and since September

1924, approximately \$16,000 have been appropriated by this fine friend of the park, and nearly \$13,000 have been expended in road side clean-up between Mammoth Hot Springs and Norris Geyser Basin and along the shore of Lake Yellowstone. The work now in progress is along the Grand Canyon-Lake Yellowstone road and along the Artist Point branch road. The most difficult work is already completed, although it will be several years before the smaller projects are finished. Our benefactor visited several national parks this past summer, including the Yellowstone, of course, and expressed great satisfaction with the work accomplished under his proposals. He has authorized the continuance of this landscape activity and has also offered to assist in similar work in Crater Lake National Park. His interest in the park has also prompted him to discuss aid to the national parks along other lines which it appears Congress will unlikely to undertake or even consider.

One must see the Yellowstone road side improvement to appreciate what this work means to a park. The effects obtained are almost unbelievable. The mere removal of the litter constitutes a transformation, but after the snow of a winter and the following summer's sun have done their part, one can hardly realize that the highway has not been removed to a new location. The grass and flowers among the trees and along the roads present a truly park atmosphere that did not exist before this work was undertaken.

Aside from the beautiful effects of the road side landscape work, this new activity has profoundly influenced both park employees and the traveling public, and we have noted that much greater care is being taken in Yellowstone Park to avoid throwing papers, cans and other debris along the highways. Road foremen are especially interested in keeping the roadsides clean, and it is no longer difficult to make them establish borrow pits for their maintenance gravel away from the traveled routes.

Other landscape activity in the Yellowstone that deserves special mention this year is the continuance of the work of removing the telephone lines from the road sides. The National Park Service and the Yellowstone Park Hotel Company cooperating have now removed all lines between the park headquarters at Mammoth Hot Springs and Lake Hotel via Norris Geyser Basin and the Canyon of the Yellowstone from the main highways to swaths in the timber and to open spaces a considerable distance away. This year's work is confined to completing the work between Norris Basin and Old Faithful. Much work of this character will remain to be done in the future and will be carried on as heavy maintenance work, because nearly all of our old lines are ⁱⁿ poor condition and require new poles and cross arms.

All of this work is approved by our landscape engineering division which also devoted much attention to the road side

clean-up projects, and to vista cutting in connection with them, especially at Twin Lakes.

BUILDING NEW ROADS AND BETTERING OLD ONES

Closely allied to these landscape improvements is the relocation and betterment of the highways of Yellowstone Park. No absolutely new projects are under way in this park, and with the possible exception of a road into the Bechler River region, I doubt if any new roads will be built in even the remote future. We are even asking Congress to prohibit road construction in the Upper Yellowstone country and in the Teton Mountains, should these regions be added to the Park.

On the other hand, Yellowstone's present road system needs much revision and improvement, and some adequate dust palliative must be found or riding over these highways in mid-summer will be a miserable experience. During the past summer there were times when the impalpable dust hid the road sides from view and impaired greatly the pleasure of touring in the great playground. Sprinkling was carried on as usual but its effects on dust quickly disappeared.

Road projects carried on this year included the completion of the Lake Shore Drive between West Thumb of Lake Yellowstone and Bridge Bay built to eliminate the heaviest grade on the Grand Loop System - eighteen percent; the Inspiration Point Road,

a new highway replacing the narrow road along the west side of the Yellowstone Canyon; and certain new sections of road in the Tower Falls district, notably a mile of new highway to Petrified Tree. Projects begun since my last report were the Firehole Cutoff, a new highway along the Firehole River between Madison Junction and the Firehole Cascades, the reconstruction of 9 miles of the Cody road between Sylvan Lake and Turbid Lake where the highway is now narrow and dangerous on account of many curves, and a small section of new road in the vicinity of the Buffalo Ranch made necessary on account of the necessity for extending the hay fields in that part of the park.

The new section of road on the Firehole River is being constructed on the highest standards of any used in the National Park Service but the beauty of the canyon justifies the very great attention that is being given to details of wall and fill construction.

NATURE TRAILS AND GUIDES

Very gratifying progress was made in the extension of our nature educational work in Yellowstone Park this year. In the first place an accomplishment of great importance was completed before the season opened. This was the preparation of the ranger-naturalist's manual for the use of rangers, ranger-naturalists and lecturers in the park. This volume was compiled under the direction of J. E. Haines, who is serving as Acting Director of

the Yellowstone Park Museum without any compensation other than the satisfaction of doing well a fine public service. The manual has proved to be invaluable and now constitutes one of the important volumes in the literature of Yellowstone Park. A similar manual covering the history of the park is being prepared under the supervision of Chief Naturalist A. F. Hall.

During the season ranger naturalists were stationed at Mammoth Hot Springs, Yellowstone Lake, Old Faithful, Madison Junction and Camp Roosevelt. These men were under the general supervision of the Chief Ranger but the lecture, guiding and information service was conducted with the advice of Mr. Haynes and Dr. H. S. Conard, the latter a ranger-naturalist of wide experience in the teaching of general science. The total number of visitors who came in contact with the ranger naturalists was _____ as compared with _____ during the 1925 season. New features of this service included regular lectures on geology at Old Faithful, a talk on animal life, fish and fishing, each night at the Lake Hotel and the Lake Lodge and personally conducted excursions through the fish hatchery each morning, informal talks on bears at Old Faithful and Canyon, and extended nature hikes over the trails at Mammoth Hot Springs.

All of the features inaugurated this year, as well as those inaugurated in past years, were heavily patronized and greatly enjoyed by the traveling public.

At the Old Faithful center of interest three nature trails were constructed, one over Geyser Hill, another to Black Sand Basin, and a third, a purely natural history trail, through the woods east of Firehole River. These trails have been well marked, full descriptions being given of every geyser and hot spring and attention being called to various species of trees, flowers and other interesting natural objects. With these trails it will be possible to give many more park visitors a thorough understanding of the natural features of the geyser basin than ever would have been practicable with the two ranger naturalists available at that point. I regard the nature, information and educational work of Chief Naturalist Hall and the rangers in Yellowstone Park this year as worthy of great commendation.

LEGISLATION AFFECTING BOUNDARY ADJUSTMENTS

I had hoped to be able to record in this report the fact that the Yellowstone boundary revision bill had been enacted into law and that the Teton mountains had been made a part of Yellowstone National Park. For a time last winter it appeared that this very important legislation would receive the approval of Congress. Very favorable hearings were held by both the Senate and House Public Lands Committees during the months of March and April but the revival of the plan to place an irrigation

reservoir in the Bechler River Basin in the Southwestern corner of the park stopped the progress of the measure.

This irrigation proposal is not exactly the same as the one which occupied so much of our time in 1920 and 1921. At that time it was proposed to build reservoirs in the park.

This time the so-called Smith Amendment proposes to remove approximately 12,000 acres from the control of the park and make this region available for a reservoir. Advantage was taken of the fact that the Yellowstone boundary adjustment bill was pending and it was proposed to add the Smith Amendment to this bill. Subsequently the Senate passed a resolution providing for the visit of a Sub-committee of the Public Lands Committee to the Bechler River Basin and an appropriation of \$3,500 was made to cover the expenses of the trip. On August 17th Chairman Stanfield and several members of the Committee visited the proposed reservoir site. As I write this report the Senate Committee has not rendered its report.

We are, of course, opposed to the delimitation of the park for any commercial purpose. We believe it would be a bad precedent and although this proposal will delay the final consideration of the bill to adjust the boundaries of the park along natural lines and give the Teton Mountains a park status, nevertheless it is important that the proposed amendment be thoroughly

considered at this time and, if possible, the question of whether park lands shall be used for commercial purposes settled in favor of the principle of complete conservation of the park territory for all time to come.

